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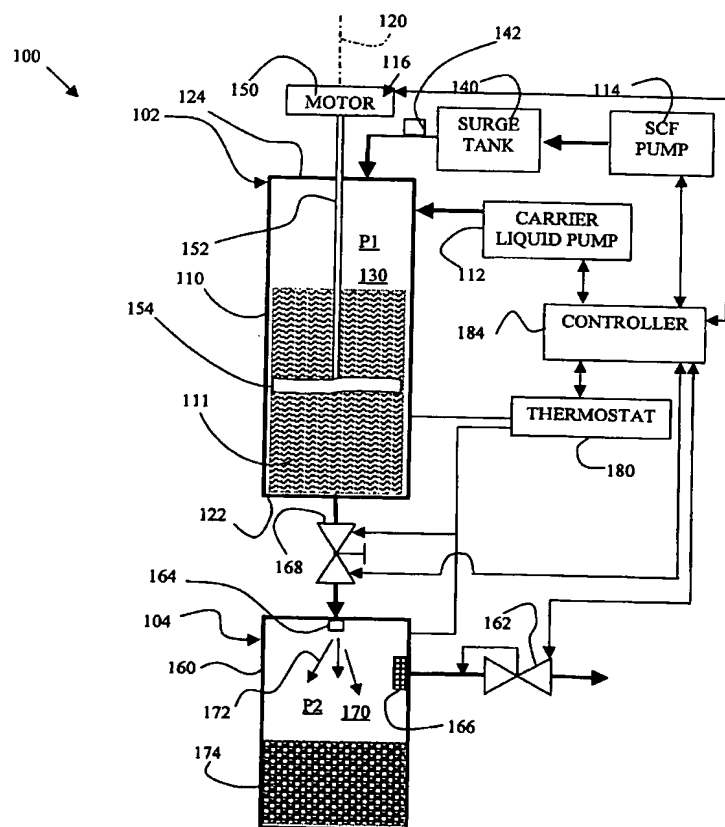
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(54) Title: METHOD AND APPARATUS FOR SUPERCRITICAL FLUID ASSISTED PARTICLE PRODUCTION



(57) Abstract: The present invention provides an apparatus and methods of producing particles that include a polymer, a wax and/or lipid and, optionally, a biologically active substance. A load stock including a polymer, a wax, and/or a lipid that is a solid at standard temperature and pressure and, optionally, a biologically active substance is provided. The load stock is contacted with a supercritical fluid to form a melt. The melt is contacted with a polar solvent under suitable conditions to form an emulsion. The emulsion is expanded across a pressure drop to form solid particles that include the load stock. The methods and apparatus facilitate the production of very small particles that have a narrow particle size distribution. An apparatus is shown in Figure 1. The apparatus (100) includes an emulsion and mixing apparatus (102) and an expansion apparatus (104). The emulsification apparatus includes an emulsification vessel (110) and an emulsion assembly (116).



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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61L 2/16, 2/23; B29B 9/00, 9/16; C08J 3/12; A61K 9/14

US CL : 424/489, 497, 498, 501, 502; 264/5, 9, 10, 11, 12; 422/188, 224, 242, 292

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/489, 497, 498, 501, 502; 264/5, 9, 10, 11, 12; 422/188, 224, 242, 292

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST search, search terms: polymer, wax, lipid, supercritical fluid, solid, powder, particulate, particle, emulsion, melt

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,639,441 A (SIEVERS et al) 17 June 1997 (17.06.1997).	1-20
A	US 5,833,891 A (SUBRAMANIAM et al) 10 November 1998 (10.11.1998).	1-20
A	US 5,851,453 A (HANNA et al) 22 December 1998 (22.12.1998).	1-20

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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